Answer on Question 71435-Economics - Microeconomics

Suppose a monopolist is able to segment its market into 2 consumer groups based upon known differences in willingness to pay. Group A's demand function is given by P = 90 - 2Q and group B's demand function is given by P = 70 - 0.5Q. In addition, the marginal cost of producing and selling a unit to group A is the same as the marginal cost of producing and selling a unit to group B. Specifically, MC = 10. If the firm practices second degree (or multi-market) price discrimination, then total profit will be maximized by:

i. selling Q = 20 units at a price of P = $50 to members of group A

ii. selling Q = 40 units at a price of P = $10 to members of group A

iii. selling Q = 60 units at a price of P = $40 to members of group B

iv. selling Q = 80 units at a price of P = $30 to members of group B

Solution.

The sales volumes of the monopoly in both markets are determined from the condition of maximizing profits under market segmentation: MR1 (q1) = MR2 (q2) = MC (Q), where Q = q1 + q2.

$$MR_1 = \left((90 - 2q_1) \times q_1\right)' = 90 - 4q_1 = 10, \quad => q_1 = 20, P = 50$$

$$MR_2 = \left((70 - 0.5q_2) \times q_2\right)' = 70 - q_2 = 10 \ => q_2 = 60, P = 40$$

So, the right answers are

i. selling Q = 20 units at a price of P = $50 to members of group A

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